CIM Provider for BR-Series Adapters

Installation Guide

Converged Network Adapters BR-1007, 1020, and 1741
Host Bus Adapters BR-804, 815, 825, 1867, and 1869
Fabric Adaper BR-1860

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Initial release	All

Contents

3   Frequently Asked Questions

A   Installing OpenPegasus

List of Tables

List of Figures

Preface

Intended Audience

This guide is for end customers who want to manage QLogic BR-Series Adapters using the CMPI-compliant Common Information Model (CIM) Provider.

What Is in This Guide

This document provides instructions for installing and using the CMPI-compliant CIM Provider for QLogic BR-Series Adapters. It is organized to help you find the particular information that you want as quickly and easily as possible.

The document contains the following components:

- Chapter 1, "Installation Requirements" lists the hardware and memory requirements, supported platforms, and drivers to install the CIM Provider for QLogic Adapters (CPQA).

- Chapter 2, "Installing CIM Provider" explains how to install and uninstall the CPQA. It also describes how to configure the environment variables for Windows, Linux, and VMware platforms.

- Chapter 3, "Frequently Asked Questions" provides answers to the most frequently asked questions.

- Appendix A, "Installing OpenPegasus" explains how to install OpenPegasus.

Related Materials

For information about downloading documentation from the QLogic Web site, see "Downloading Updates" on page xii.

Documentation Conventions

This guide uses the following documentation conventions:

- **NOTE** provides additional information.

- Text in blue font indicates a hyperlink (jump) to a figure, table, or section in this guide, and links to Web sites are shown in underlined blue. For example:
    - ❑ Table 9-2 lists problems related to the user interface and remote agent.
    - ❑ See "Installation Checklist" on page 6.
    - ❑ For more information, visit www.qlogic.com.

- Text in **bold** font indicates user interface elements such as command names, keywords, operands and text to enter in the GUI or CLI. For example:
    - ❑ Click the **Start** button, point to **Programs**, point to **Accessories**, and then click **Command Prompt**.
    - ❑ Under **Notification Options**, select the **Warning Alarms** check box.

- Text in Courier font indicates a file name, directory path, or command line text. For example:
    - ❑ To return to the root directory from anywhere in the file structure: Type cd /root and press ENTER.
    - ❑ Enter the following command: sh ./install.bin

- Key names and key strokes are indicated with UPPERCASE:
    - ❑ Press CTRL+P.
    - ❑ Press the UP ARROW key.

- Text in *italics* indicates terms, emphasis, variables, or document titles. For example:
    - ❑ For a complete listing of license agreements, refer to the *QLogic Software End User License Agreement*.
    - ❑ What are *shortcut keys*?
    - ❑ To enter the date type *mm/dd/yyyy* (where *mm* is the month, *dd* is the day, and *yyyy* is the year).

- Topic titles between quotation marks identify related topics either within this manual or in the online help, which is also referred to as *the help system* throughout this document.

- Command line interface (CLI) command syntax conventions include the following:

  - ❑ < > (angle brackets) indicate a variable whose value you must specify. For example:

    - ■ <serial_number>

    NOTE

    For CLI commands only, variable names are always indicated using angle brackets instead of *italics*.

  - ❑ [ ] (square brackets) indicate an optional parameter. For example:

    - ■ `[<file_name>]` means specify a file name, or omit it to select the default file name.

  - ❑ | (vertical bar) indicates mutually exclusive options; select one option only. For example:

    - ■ on|off

    - ■ 1|2|3|4

  - ❑ ... (ellipsis) indicates that the preceding item may be repeated. For example:

    - ■ `x...` means *one* or more instances of `x`.

    - ■ `[x...]` means *zero* or more instances of `x`.

  - ❑ ( ) (parentheses) and { } (braces) are used to avoid logical ambiguity. For example:

    - ■ `a|b c` is ambiguous
      `{(a|b) c}` means `a` or `b`, followed by `c`
      `{a|(b c)}` means either `a,` or `b c`

License Agreements

Refer to the *QLogic Software End User License Agreement* for a complete listing of all license agreements affecting this product.

Technical Support

Customers should contact their authorized maintenance provider for technical support of their QLogic products. QLogic-direct customers may contact QLogic Technical Support; others will be redirected to their authorized maintenance provider. Visit the QLogic support Web site listed in Contact Information for the latest firmware and software updates.

For details about available service plans, or for information about renewing and extending your service, visit the Service Program Web page at http://www.qlogic.com/Support/Pages/ServicePrograms.aspx.

Downloading Updates

The QLogic Web site provides periodic updates to product firmware, software, and documentation.

To download firmware, software, and documentation:

1.   Go to the QLogic Downloads and Documentation page: http://driverdownloads.qlogic.com.

2.   Under QLogic Products, type the QLogic model name in the search box.

3.   In the search results list, locate and select the firmware, software, or documentation for your product.

4.   View the product details Web page to ensure that you have the correct firmware, software, or documentation. For additional information, click the **Read Me** and **Release Notes** icons under Support Files.

5.   Click **Download Now**.

6.   Save the file to your computer.

7.   If you have downloaded firmware, software, drivers, or boot code, follow the installation instructions in the *Readme* file.

Instead of typing a model name in the search box, you can perform a guided search as follows:

1.   Click the product type tab: **Adapters**, **Switches**, **Routers**, or **ASICs**.

2.   Click the corresponding button to search by model or operating system.

3.   Click an item in each selection column to define the search, and then click **Go**.

4.   Locate the firmware, software, or document you need, and then click the icon to download or open the item.

Training

QLogic Global Training maintains a Web site at www.qlogictraining.com offering online and instructor-led training for all QLogic products. In addition, sales and technical professionals may obtain Associate and Specialist-level certifications to qualify for additional benefits from QLogic.

Contact Information

QLogic Technical Support for products under warranty is available during local standard working hours excluding QLogic Observed Holidays. For customers with extended service, consult your plan for available hours. For Support phone numbers, see the Contact Support link at support.qlogic.com.

Support Headquarters	QLogic Corporation 4601 Dean Lakes Blvd. Shakopee, MN 55379 USA
QLogic Web Site	www.qlogic.com
Technical Support Web Site	http://support.qlogic.com
Technical Support E-mail	support@qlogic.com
Technical Training E-mail	training@qlogic.com

Knowledge Database

The QLogic knowledge database is an extensive collection of QLogic product information that you can search for specific solutions. QLogic is constantly adding to the collection of information in the database to provide answers to your most urgent questions. Access the database from the QLogic Support Center: http://support.qlogic.com.

1 Installation Requirements

CIM Provider Platform Requirements

Table 1-1 lists the platform requirements for the CIM Provider for QLogic Adapters (CPQA).

Table 1-1. CIM Provider Platform Requirements

Operating System	Intel x86	AMD	CIMOM
Windows			
Windows Server 2008 with SP2	32b, 64b	32b, 64b	OpenPegasus, WMI
Windows Server 2008 with SP1 and R2	64b	64b	OpenPegasus, WMI
Windows 7	32b, 64b	32b, 64b	OpenPegasus, WMI
Windows Small Business Server 2011	64b	64b	OpenPegasus, WMI
Windows Server 2012, Windows Server 2012 R2	64b	64b	OpenPegasus, WMI
Linux			
Red Hat Enterprise Linux (RHEL) 5.9 and 5.10	32b, 64b	32b, 64b	OpenPegasus
Red Hat Enterprise Linux (RHEL) 6.4 and 6.5	32b, 64b	32b, 64b	OpenPegasus
SUSE Linux Enterprise Server (SLES) 10.3 and 10.4	32b, 64b	32b, 64b	OpenPegasus
SUSE Linux Enterprise Server (SLES) 11.1, 11.2, and 11.3	32b, 64b	32b, 64b	OpenPegasus, SFCB (native)
VMware			
VMware ESXi 5.0, 5.1, and 5.5	64b	64b	SFCB (native)

> **NOTE**
>
> The current release supports **n** and **n-1** versions of OpenPegasus Common Information Model (CIM) Servers. For the Windows platform, support for Windows Management Instrumentation (WMI) is available through the QLogic BR-Series Adapter driver and the WMI provider is unavailable.

Supported Adapters

Table 1-2 lists the supported HBAs, CNAs, and Fabric Adapters.

Table 1-2. Supported HBAs and CNAs

Model	Max Port Speed	Number of Ports
BR-804	8 Gbps	2
BR-815	8 Gbps	1
BR-825	8 Gbps	2
BR-1007	10 Gbps	2
BR-1020	10 Gbps	2
BR-1741	10 Gbps	2
BR-1860-1F	16 Gbps	1
BR-1860-2F	16 Gbps	2
BR-1860-1P	10 Gbps	1
BR-1860-2P	10 Gbps	2
BR-1860-1C	NA	1
BR-1860-2C	NA	2
BR-1867	16 Gbps	2
BR-1869	16 Gbps	4

Supported Drivers

CIM Provider can work with multiple versions of BR-Series Adapter driver versions in the following platforms:

■ VMware

■ Windows

■ Linux

NOTE

Check the release note for supported driver versions.

System Requirements

This section details the memory requirements, software directories, CIM Server settings, and installation requirements for the CPQA.

Memory Requirements

Supported driver version memory requirements are sufficient for installing the CPQA.

Software Directories

In the Linux and VMware platforms, the location of the provider installation is **/opt/brocade/adapter**. The provider package contains the following hierarchy of directories and files:

■ cimprovider	This is the main directory.
■ lib	This contains the provider and the dependent libraries.
■ tools	This contains the utility used for registering the provider.
■ slp	This contains the Service Location Protocol (SLP) registration template. This is not a platform or provider-specific template. The same template can be used for the provider installed on any platform. For more details, refer to "SLP Configuration" on page 20.

- readme.txt — This describes the CIM Provider and the prerequisites for installing or uninstalling the provider and the supported CIM servers.

- cimv2260Experimental-MOFs.zip — This archive contains the standard schema MOF files. This can be downloaded from the www.dmtf.org website.

- log — This contains the installation log file generated while installing the provider.

- mofs — This contains the provider schema MOF files for the supported profiles and subprofiles.

- x86_64/i386 — This contains the cimprovider.zip file as per the processor.

NOTE

There is no specific directory structure for the CIM Provider Development Kit (PDK) provider on the VMware platform.

In the Windows platform, the provider package contains the following hierarchy of directories and files:

- [target] — This is the target directory. By default, it is set to [Program Files]\QLOGIC\adapter\cimprovider\.

- [target]\mof — This contains the provider schema MOF files for the supported profiles and subprofiles.

- [target]\slp — This contains the SLP registration template.This is not a platform or provider-specific template. The same template can be used for the provider installed on any platform. For more details, refer to "SLP Configuration" on page 20.

- [target]\lib — This directory contains the provider and the dependent libraries.

- [target]\tools — This directory contains the registration utilities.

- [target]\readme.txt   This readme file explains how to install the provider.

- [target]\InstallcimProvider.log   This is the installation log file generated while installing the provider.

- [target]\installer.dll   These are the files used by the Windows installer.

    \installer.InstallState
    \InstallCimProvider.cmd
    \UninstallCimProvider.cmd

Installation Prerequisites

Before installing the provider, make sure that the **CIM_SERVER** environment variable is configured with the value **sfcb/pegasus** depending on the CIM Server. The default value is **pegasus**.

For detailed information on installation, refer to the following sections:

- Installation Requirements for OpenPegasus CIM Server

- Installation Requirements for Built-in SFCB CIM Server

- Installation Requirements For User-installed SFCB CIM Server

- Installation Requirements for ESXi Server Using vMA

- Installation Requirements for ESXi Server Using VMware Update Manager

Installation Requirements for OpenPegasus CIM Server

Before installing the provider, make sure that the environment variable **PEGASUS_HOME** is configured to run the OpenPegasus CIM Server.

The following are the prerequisites for installing the CIM Provider.

1. Make sure that the **CIM_SERVER** environment variable is set to **pegasus** before installing or uninstalling the provider. This is not mandatory in case of OpenPegasus, as the default value for this variable is considered as **pegasus** when not defined.

2. Make sure that the Pegasus-specific environment variable **PEGASUS_HOME** is defined.

> **NOTE**
>
> In Windows, the OpenPegasus CIM Server must be built using **PEGASUS_ENABLE_CMPI_PROVIDER_MANAGER** to make it CMPI-capable.

3. Make sure that the OpenPegasus CIM Server is running.

If you use SSL on the communication protocol, make sure that the Pegasus is built with Open SSL. For more information, refer to Appendix A, "Installing and Configuring the OpenPegasus CIM Server".

Run the **cimconfig -s enableHttpsConnection=true -p** command in the OpenPegasus directory to enable the HTTPS connection. Restart the CIM Server once it is enabled.

> **NOTE**
>
> It is recommended to have the CIM schema version 2.26. It is not mandatory as the installation might succeed even with the older CIM schema versions.

4. Make sure that the supported QLogic BR-Series Adapter driver (refer to "Supported Drivers" on page 3) is installed on the host. The BFA or BNA drivers must be loaded to access the QLogic HBAs and CNAs using the CIM Provider.

Installation Requirements for Built-in SFCB CIM Server

The following are the installation prerequisites for a built-in SFCB CIM Server.

1. Make sure Open Pegasus or any other CIM server is shut down. If not, the classes may be generated for a wrong CIM Server while installing the Provider file.

2. Make sure that the **CIM_SERVER** environment variable is set to **sfcb** before installing or uninstalling the provider.

3. Make sure that the SFCB server is stopped before installing or uninstalling the provider [**/etc/init.d/sfcb stop**]. The SFCB CIM Server does not support dynamic class creation and deletion. Therefore, the server must be stopped for the provider installation and uninstallation.

> **NOTE**
>
> On ESXi 5.0, you need not set the **CIM_SERVER** environment variable (Step 1) or stop SFCB server (Step 2) before provider installation.

4. Make sure that the supported QLogic BR-Series Adapter driver (refer to "Supported Drivers" on page 3) is installed on the host. The BFA or BNA drivers must be loaded to access the QLogic HBAs and CNAs using the CIM Provider.

> **NOTE**
>
> The **sfcbrepos** script is used for registering the vendor schema with **SLES 11 SFCB server.** The pre-installed **sfcbrepos** script of the SFCB server has a defect. The defect must be cleared before running the script. The following details describe the **sfcbrepos** script that comes with SLES 11.
>
> The **sfcbrepos** script will not work unless you update the script with the following changes.
> Make sure to back up the original file as **sfcbrepos.orig**
> **E.g.** cp /usr/bin/sfcbrepos /usr/bin/sfcbrepos.orig
> **File:** /usr/bin/sfcbrepos
> **Original Line:** Line #8: args=`getopt fhsi:r:c:X: $*`
> **Corrected Line:** Line #8: args=`getopt fhis:r:c:X: $*`

5. Make sure that the SFCB is started once installation is done by executing the following command.

   [/etc/init.d/sfcb start]

Installation Requirements For User-installed SFCB CIM Server

The following are the installation prerequisites for a user-installed SFCB CIM Server.

1. Make sure that the **CIM_SERVER** environment variable is set to **sfcb** before installing or uninstalling the provider.

2. Make sure that the environment variable **SFCB_HOME** is set to the location where the SFCB server is installed.

> **NOTE**
>
> It is not required to set any environmental variables if the SFCB CIM Server is pre-installed or user-installed in the default location (under **/**).

3. Make sure that the SFCB server is stopped by executing the following command.

   [<SFCB_HOME>/etc/init.d/sfcb stop]

4.   The CIM schema version of Experimental 2.26.0 or later, or Final 2.19.1 or later for SFCB must be defined with some of the classes required for the CIM Provider. If the SFCB server installed does not have the above-mentioned schema, perform the following tasks:

   a.   Download the above-mentioned schema from www.dmtf.org.

   b.   Extract the schema into any of the locations.

   c.   Set the environment variable **SFCB_SCHEMA** to point to the schema directory.

   d.   Make sure you have the file **${SFCB_SCHEMA}/CIM_Schema.mof.** If the file does not exist, make a copy of **${SFCB_SCHEMA}/cimv2xx.mof** as **${SFCB_SCHEMA}/CIM_Schema.mof**.

5.   Make sure that the supported QLogic BR-Series Adapter driver is installed on the host that has QLogic Adapters installed. The BFA or BNA drivers must be loaded to access the QLogic HBAs and CNAs using the CIM Provider.

6.   Make sure that the SFCB server is started once the provider is installed by executing the following command.

   [<SFCB_HOME>/etc/init.d/sfcb start]

SFCB Commands

To check the status of, to stop, or to start the SFCB CIM Server, run the following commands:

■   To check status of the SFCB server:

   <SFCB_HOME>/etc/init.d/sfcb status

■   To stop the SFCB server:

   <SFCB_HOME>/etc/init.d/sfcb stop

■   To start the SFCB server:

   <SFCB_HOME>/etc/init.d/sfcb start

HTTP/HTTPS Connection in SFCB Server

By default, HTTP (5988) connectivity is disabled. Enable HTTP (5988) connectivity in the **/etc/sfcb/sfcb.cfg** file.

`"enableHttp:false"` must be changed to `"enableHttp:true"`

Installation Requirements for ESXi Server Using vMA

The following are the installation prerequisites for an ESXi Server using vMA.

1. The vSphere Management Assistant (vMA) must be installed on an ESXi server other than where you are installing the driver or CIM Provider. Download vMA from the VMware website.

2. For an ESXi 4.1 Server, set the server (where the driver is to be installed) in maintenance mode. Using the vSphere Client, right-click **ESXi**, and select **Enter Maintenance Mode**. This step is not required for ESXi 5.x platforms.

Installation Requirements for ESXi Server Using VMware Update Manager

The following are the installation prerequisites for an ESXi Server using VMware Update Manager.

1. The VMware Update Manager must be installed.

2. The vSphere Client Update Manager plugin must be installed and enabled.

3. The CIM Provider offline bundle .zip files must be downloaded to the Virtual Infrastructure (VI) Client machine.

2 Installing CIM Provider

CIM Provider Installation

Before installing the CIM Provider, make sure that the host machine has one of the supported CIM Servers installed. During provider installation, the installation script internally invokes the CIM Server-specific registration mechanism to get the provider registered with the CIM Server.

Installing CIM Provider on OpenPegasus CIM Server

Before installing CIM Provider, perform the following functions:

■ Make sure that the installation prerequisites for the OpenPegasus CIM Server have been met, as mentioned in .

> **NOTE**
>
> The BFA or BNA drivers must be loaded to access the QLogic HBAs and CNAs using the CIM Provider.

> **NOTE**
>
> For Windows, the.NET Framework version 2.0 or greater must be installed.

■ Type **set PATH** to define the directory path in the command prompt. If the path is not already defined, perform the following steps.

1. Click **Start > Control panel > System**.

2. Select the **Advanced** tab and click **Environment Variables**.

3. Select **Path** in the system variable group and click **Edit**.

4. Add **;%SystemRoot%\System32\Wbem** to the end of the variable value and click **OK**.

Installing CIM Provider on SFCB CIM Server

Before installing CIM Provider, perform the following functions:

- Make sure that the installation prerequisites for the SFCB CIM Server have been met, as mentioned in .

- Make sure that the built-in SFCB CIM Server is available with SUSE 11.x, VMware ESX 4.1, VMware ESXi 4.1, and VMware ESXi 5.x support.

NOTE

The SFCB server does not support dynamic class creation and deletion. Make sure to stop the server before provider installation. Note that this is not applicable for ESXi 5.x.

Installing the RPM-based Provider Package for Linux and VMware Platforms

Perform the following steps to install the RPM-based provider package.

1. Run the following command to know if the provider is already installed.

   rpm -qa | grep brocade_adapter_cim

2. Run the following command to install the RPM-based provider package from where the provider package is placed.

   rpm -Uvh *<Package name>*

   The *<Package name>* variable specifies the name of the RPM-based provider package. The version string x.x.x.x-0 in the provider name varies based on the release version; for example, 3.x.x.x-x, and so on.

Example

In a Linux platform:

- For OpenPegasus and SFCB server:

  ❑ **rpm -Uvh brocade_adapter_cim_provider-linux-3.x.x.x-x.i386.rpm** for 32-bit machine

  ❑ **rpm -Uvh brocade_adapter_cim_provider-linux-3.x.x.x-x.x86_64.rpm** for 64-bit machine

In a VMware platform:

- For OpenPegasus and SFCB server:

  ❑ **rpm -Uvh
    brocade_adapter_cim_provider-VMware_esx4-3.x.x.x-x.i386.rpm**
    for 64-bit machine

  ❑ **rpm -Uvh
    brocade_adapter_cim_provider-VMware_esx4-3.x.x.x-x.x86_64.rpm**
    for 64-bit machine

Uninstalling the RPM-based Provider

Run the following command to uninstall the RPM-based provider package.

rpm -e *<Package name>*

The *<Package name>* variable specifies the name of the RPM-based provider package that is already installed. The version string x.x.x.x-0 in the provider name varies based on the release version; for example, 3.x.x.x-x, and so on.

Example

In a Linux platform:

- For OpenPegasus and SFCB server:

 ❑ **rpm -e brocade_adapter_cim_provider-linux-3.x.x.x-x**

In a VMware platform:

- For OpenPegasus and SFCB server:

  ❑ **rpm -e brocade_adapter_cim_provider-VMware_esx4-3.x.x.x-x**

Installing the MSI-based Provider Package for Windows Platforms: OpenPegasus

Perform the following steps to install the Windows MSI-based provider package.

1. Double-click **brocade_adapter_cim_provider_win_x86_v3-x-x-x.msi** provider from the package.

    The CIM Provider starts the setup wizard and displays a welcome screen (Figure 2-1).
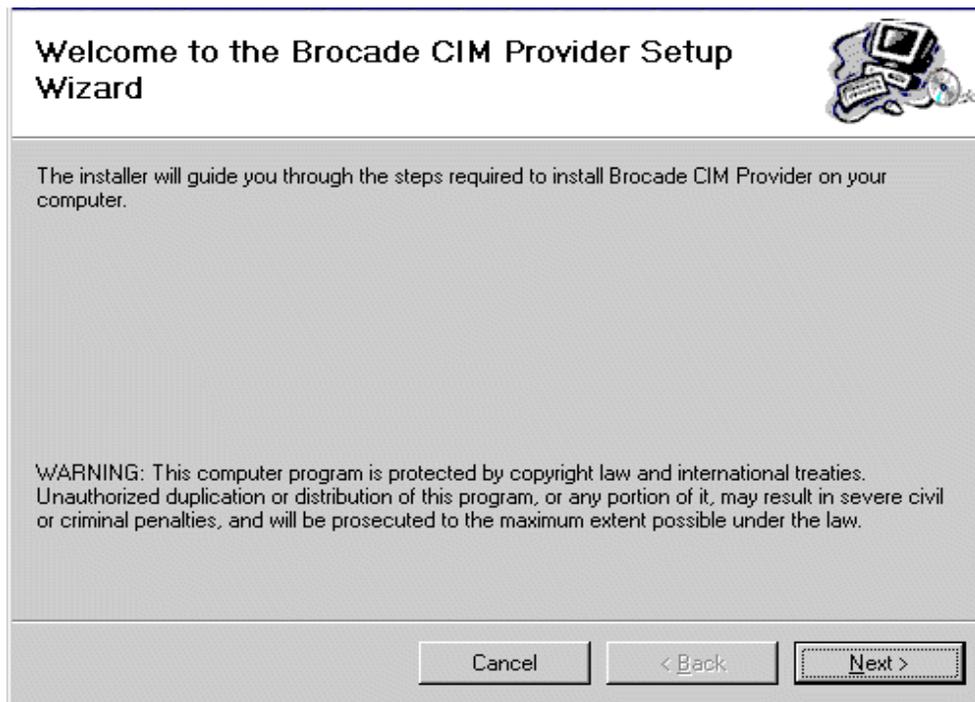
Figure 2-1. Installation Setup Wizard

2.   Click **Next** to continue. By default, the installer automatically locates the
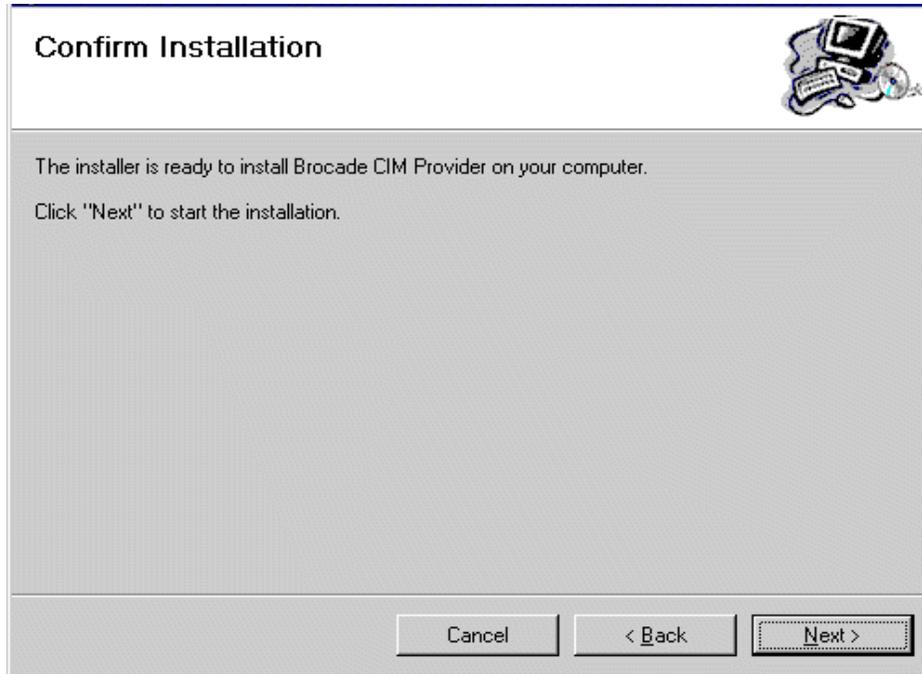folder path.

The **Select Installation Folder** screen displays (Figure 2-2).
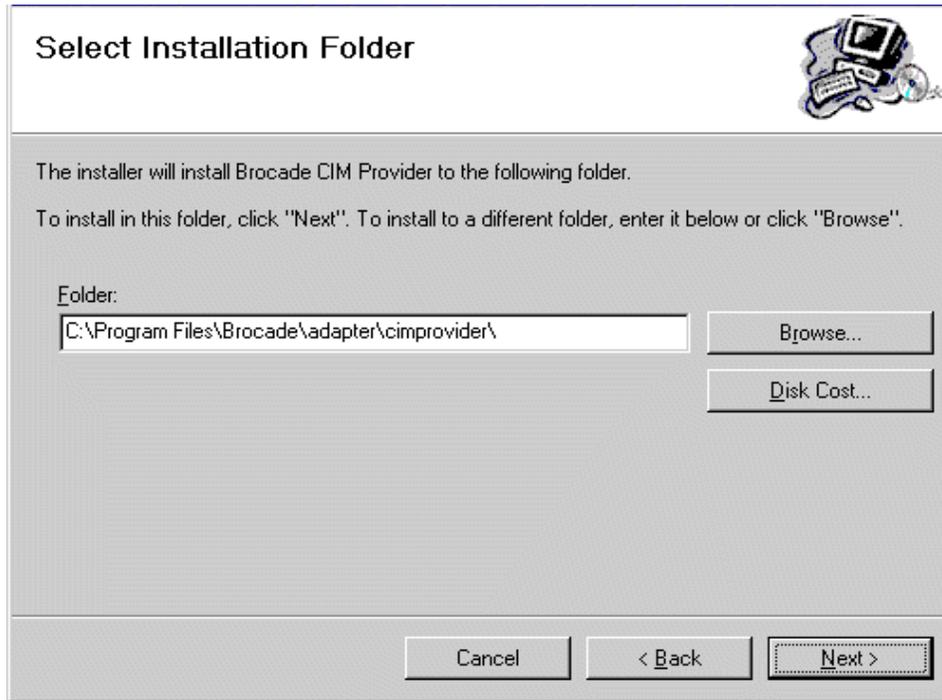
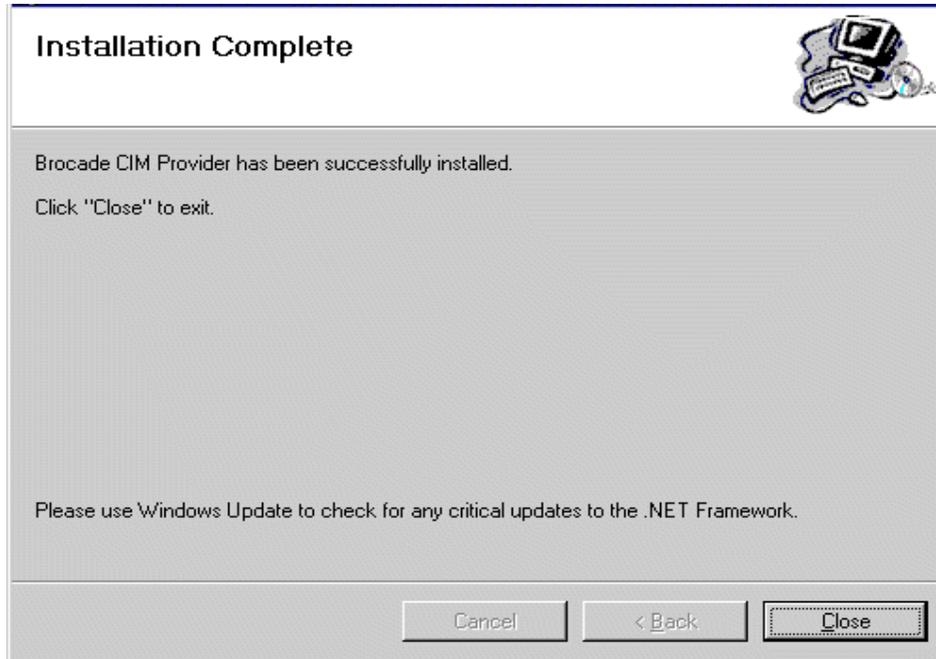*Figure 2-2. Select Installation Folder*

3.   Click **Next**.

The **Confirm Installation** screen displays (Figure 2-3).

Figure 2-3. Confirm Installation Screen

4.   Click **Next** to continue.

The **Installation Complete** screen displays (Figure 2-4).

Installation Complete

Brocade CIM Provider has been successfully installed.

Click "Close" to exit.

Please use Windows Update to check for any critical updates to the .NET Framework.

| Cancel | < Back | Close |

Figure 2-4. Installation Complete Screen

5.   Click **Close** to exit.

Uninstalling the Windows MSI-based Provider

Perform the following steps to uninstall the Windows MSI-based provider package.

1.   Click **Start > Control Panel**.

2.   Select **Add or Remove Programs/Programs and Features**.

3.   Select **Brocade CIM Provider** from the list.

4.   Click **Remove/Uninstall** to uninstall the provider package.

Installing the CIM Provider for VMware Platform

The following sections describe the steps to install the CIM Provider for the VMware platform using esxupdate, vSphere Management Assistant (vMA), and VMware Update Manager (VUM).

Installing or Uninstalling the CIM Provider Using esxcli Command on VMware ESXi 5.0 Platform

The .vib file can be installed on an ESXi 5.0 system.

The following basic commands work with a .vib file:

■ Execute the following command to list the bundles that are already installed.

esxcli software vib list

■ Execute the following command to install the .vib file that is located under the **/opt** directory.

esxcli software vib install -v /opt/vmware-esx-provider-brcdprovider.vib

■ Execute the following command to remove an existing .vib file (to get the name, execute the **esxcli software vib list** command).

esxcli software vib remove --vibname="brcdprovider"

> **NOTE**
>
> Reboot the server after the CIM Provider is uninstalled.

Installing the CIM Provider Using vMA

Before installing the CIM Provider on the ESXi Server, make sure that the installation prerequisites for the ESXi Server using vMA have been met, as mentioned in "Installation Prerequisites" on page 5.

To install the CIM Provider on ESXi Server using vMA, perform the following steps.

1. Power on the vMA virtual machine.

2. Set the DHCP password for the virtual machine.

3. Log in as vi-admin, using the password configured in Step 2.

4. Download the VMware CIM Provider offline bundle from the QLogic website, then copy it to the temporary directory (**/tmp**) on your vMA.

5. For superuser privileges, execute the following command.

sudo -s

6. When prompted for the password, enter the superuser account password.

7. Add the ESXi Server IP address to vMA by executing the following command.

vifp addserver *<ESXi address>*

The *<ESXi address>* variable specifies the ESXi Server IP address where the driver is to be installed.

8. Make sure that the added ESXi Server is listed in the vMA and execute the following command.

    vifp listservers

9. Execute the following command on the vMA terminal.

    vifptarget -s *<ESXi address>*

    The *<ESXi address>* variable specifies the ESXi Server IP address.

10. Scan the ESXi host against the driver CD bulletin IDs by executing the following command.

    vihostupdate -s ‑‑bundle=<*path of CIM Provider offline bundle.zip in mount location>*

    Example

    ```
    vihostupdate -s --bundle=/tmp/offline-bundle.zip
    ```

11. Install the CIM Provider bulletin IDs by executing the following command.

    vihostupdate -i ‑‑bundle=<*path of CIM Provider offline bundle.zip in mount location>*

    Example

    ```
    vihostupdate -i --bundle=/tmp/offline-bundle.zip
    ```

12. After the host is updated successfully, exit from the maintenance mode. Using the vSphere Client, right-click **ESXi** and select **Exit Maintenance Mode**.

13. Reboot the ESXi system, right-click the **ESXi server** and select **Reboot**.

Installing the CIM Provider Using VMware Update Manager

Before installing the CIM Provider on the ESXi Server, make sure that the installation prerequisites for the ESXi Server using VMware Update Manager (VUM) have been met, as mentioned in "Installation Prerequisites" on page 5.

To install the CIM Provider on the ESXi Server using VUM, perform the following steps.

1. Initially the CIM Provider must be imported into the VUM repository.

   You can import the CIM Provider offline bundle from the **Configuration** tab of the **Update Manager Administration** view to the Update Manager server repository.

   > **NOTE**
   >
   > The Update Manager Client plug-in must be installed.

   Select **Update Manager** > **Import Patches,** browse to the offline bundle zip file, and then select **Ignore Warning** > **Next** > **Finish.**

2. Create a baseline that contains the CIM Provider that needs to be installed on an ESXi host.

   To install an extension, you must use an extension baseline. After the extension is installed on the host, you can update the extension module with either patch or extension baselines.

   You can create host extension and patch baselines from the **Baselines** and **Groups** tabs in the **Update Manager** > **Administration** view.

3. Attach the extension baselines to the host you want to remediate. This can be done at the Datacenter, folder, cluster, or host level for remediating multiple hosts at once.

   You can attach baselines and baseline groups to objects from the **Update Manager Compliance** view.

4. Scan the container object to view the compliance state of the hosts in the container.

5. (Optional) Stage the extensions from the attached baselines to the ESXi hosts.

6. Remediate the hosts in the container object against extension baselines.

   During the remediation phase, the Update Manger places the host into the maintenance mode, therefore the Virtual Machines (VMs) must be manually migrated or shut down if cluster services are not capable of automated

VMware placement. The host reboots and after successful installation, the extension/patch is compliant with the host.

SLP Configuration

The Service Location Protocol (SLP) is a tool to locate the services available in the network. In storage management that uses CIM, SLP is used to locate the WBEM services available in the network. CIM-based management applications make use of SLP to discover the WBEM services available in the network. DMTF has defined a standard template, which contains the important details about the service or support offered. This template, also known as the SLP registration file, must be given as input to the Service Agent used to advertise the support or service offered.

> **NOTE**
>
> It is recommended to use Open SLP software version 2.0 or later to advertise the provider or profiles supported.

SLP Registration File

The SLP registration template is delivered with the appropriate values filled in, representing the support available in the provider. The slp.reg file will be available during the installation of the provider.

■   On Linux platforms, the RPM-based installation places the SLP template under the following location:

   /opt/brocade/adapter/cimprovider/slp

■   On Windows platforms, the MSI-based installation places the SLP template under the following location:

   <User_Selected_Installation_Folder>/slp

> **NOTE**
>
> The slp.reg file is available in both the RPM-based and MSI-based provider installers. The file installed through provider installation on one platform can be used to verify the provider running on any other platforms.

The following attributes must be updated in the default template before using it with the Service Agent. Update the following attributes with the appropriate value of the URL or location where the CIM Server with the provider installed is running:

■ **service:wbem**

■ **template-url-syntax**

For example, if the provider is installed onto a CIM Server running on machine 10.32.116.2 and listening at port number 5988, the attributes must be as follows:

■ **service:wbem:http://10.32.116.2:5988,en,65535**

■ **template-url-syntax=http://10.32.116.2:5988**

Running SLP on Windows Platforms

Run the SLP agent in one of the following modes for successful operation or advertisement of SLP attributes:

■ Execute the following command to run the agent in debug mode.

c:\OpenSLP> slpd.exe -debug -c <Absolute path for slp.conf>

-l <Absolute path for slpd.log> -r <Absolute path for slp.reg file>

■ To run in service mode, perform the following steps.

1. Open SLP, which must be installed as a service.

2. Execute the **slpd.exe -install** command. This SLP SA service must be started through the services property window of Open SLP in the **services.msc** window with the necessary parameters **-c, -l,** and **-r** passed in the **Start Parameters** field.

The usage of Open SLP SA has the following exceptions:

■ Running Open SLP SA with the **-d** option will not make the SLP daemon run and exit.

■ Running the SLP service from the command prompt will start the service, but the parameters that are passed while running from the command prompt will be ignored. Due to this, the service advertisement will not take place.

Running SLP on VMware Platforms

Before running SLP SA on VMware platforms, make sure that the standard port for SLP protocol 427 is opened in the firewall. It must be configured to open port 427 for both TCP (IN and OUT) and UDP (IN and OUT).

■　To open a port in the firewall, execute the following command.

$ esxcfg-firewall -o <*port,tcp|udp,in|out,name*>

For example, the following command will open the firewall for the port 427 to TCP IN.

$ esxcfg-firewall -o *427,tcp,in,slp*

Execute the previous command with appropriate values to open the port for all the ports IN and OUT for TCP and UDP.

■　To close the opened port in the firewall, execute the following command.

$ esxcfg-firewall -c <*port,tcp|udp,in|out*>

For example, the following command will close the opened port in the firewall.

$ esxcfg-firewall -c *427,tcp,in*

NOTE

It is recommended not to disable the firewall only for running the SLP on VMware platforms.

For more information regarding the **esxcfg** command help and usage, refer to the following web page.

http://kb.vmware.com/selfservice/microsites/search.do?language=en_US&cmd=displayKC&externalId=1021779

3 Frequently Asked Questions

General Questions

- What are the prerequisites for successful installation of the CPQA?
- What are the supported driver versions?
- What must be done if Windows CIM Provider installation returns the error message "framedyn.dll is missing"?
- What are the supported CIM Servers?
- Why is .NET framework required to run CPQA for Windows?
- How to check if the environment variables are defined properly in LINUX and VMware?
- How to install CPQA?
- What must be done in case of the following error when installing the CIM Provider or any errors of the following kind: (Parsing Error: parse error: Error Adding new Qualifier ASSOCIATION: CIM_ERR_FAILED)?
- How to build the repository for OpenPegasus CIM Server?
- Is it necessary to reinstall the CIM Provider after repository rebuild?
- How to enable HTTPS in the OpenPegasus CIM Server?
- How to check if the CIM Provider is already installed?
- Is the SLP Infrastructure supported?
- Is upgrading or reinstallation possible for CPQA 3.2.3.0?
- Do 3.2.3 CIM Providers work with 3.2.4?
- Can the same RPM package be used to install CIM Provider on all platforms?
- What must be done in case of the following errors while installing or uninstalling CIM Provider in SFCB server in SLES 11.*x*?
- What are the commands to start or stop the SFCB server in SUSE 11.*x*?
- What are the commands to start or stop the SFCB server in the VMware machine?

- Can the same rpm package be used to install CIM Provider on the OpenPegasus Server?
- What must be done in case of the following errors while installing CIM provider on ESXi 5.x platforms?

What are the prerequisites for successful installation of the CPQA?

For more information about the prerequisites for installing the CPQA, refer to "Installation Prerequisites" on page 5.

For OpenPegasus server:

- Make sure that the following environment variables are defined to the location where the OpenPegasus CIM Server is installed before installing the provider.

   PEGASUS_HOME

   CIM_SERVER (Make sure the value of **CIM_Server** is set to **pegasus**. This is an optional environment variable. In the OpenPegasus server, by default the value is **pegasus**.)

- Make sure that the CMPI-capable CIM Server is installed and running. For Windows, the OpenPegasus server must have been built with the following environment variable defined.

   PEGASUS_ENABLE_CMPI_PROVIDER_MANAGER=true

For SFCB server:

- Make sure that the following environment variable is set to **sfcb** before installing or uninstalling the provider.

   CIM_SERVER

- Make sure that the SFCB server is stopped before installing or uninstalling the provider by running the following command.

   [/etc/init.d/sfcb stop]

   > **NOTE**
   >
   > On ESXi 5.x, you need not set the **CIM_SERVER** environment variable to **sfcb** or stop SFCB server before provider installation.

What are the supported driver versions?

Table 3-1 provides release-wise driver support matrix for CPQA.

Table 3-1. Release-wise Support Matrix for CPQA

CPQA Release Version	Required Driver Version		
	Linux	Windows	VMware
1.2.0.0	1.1.0.1	1.1.0.1	1.1.0.0
2.0.0.0	2.0.0.0	2.0.0.0	2.0.0.0
2.0.1.0	2.0.0.0	2.0.0.0	2.0.0.0
2.1.0.0	2.1.0.0	2.1.0.0	2.1.0.0
2.2.0.0	2.2.0.0	2.2.0.0 and 2.2.0.2	2.2.0.0
2.2.1.0	2.2.0.0	2.2.0.0 and 2.2.0.2	2.2.0.0
2.2.2.0	2.2.0.0	2.2.0.0 and 2.2.0.2	2.2.0.0
2.2.3.0	2.2.0.0	2.2.0.0 and 2.2.0.2	2.2.0.0
2.3.0.0	2.3.0.0	2.3.0.0	2.3.0.0
2.3.1.0	2.3.0.0 and 2.3.0.2	2.3.0.0 and 2.3.0.2	2.3.0.0 and 2.3.0.2
3.0.0.0	3.0.0.0	3.0.0.0	3.0.0.0
3.0.3.0	3.0.0.0, 3.0.3.0, and 3.0.3.3	3.0.0.0 and 3.0.3.0	3.0.3.0
3.1.0.0	3.0.3.0, 3.0.3.3, and 3.1.0.0	3.0.3.0 and 3.1.0.0	3.1.0.0
3.2.0.0	N/A	N/A	3.2.0.0
3.2.1.0	3.2.0.0 and 3.2.1.0	3.2.0.0 and 3.2.1.0	3.2.1.0
3.2.3.0	3.2.4, 3.2.3.0, and 3.2.1.0	3.2.4, 3.2.1.0, 3.2.3.0, and 3.2.3.1	3.2.4 and 3.2.3.0

NOTE

For CPQA 3.2.3.0 to function with driver version 3.2.1.0, the 3.2.1.0 driver must be installed and functional prior to the installation of CPQA 3.2.3.0. CPQA version 3.2.3.0 is supported on Windows server 2012 R2 only with the driver version 3.2.3.1.

What must be done if Windows CIM Provider installation returns the error message "framedyn.dll is missing"?

1. Check for the framedyn.dll file under the location **Windows\System32\wbem**. If the file is not in the location, copy and paste it from another system into the same location. Enter **tasklist** in the command prompt to check if the framedyn.dll file exists. You can install the provider if the **tasklist** command runs without errors.

2. Enter **set PATH** to define the directory path in the command prompt. If the path is not already defined, perform the following steps.

   a. Click **Start > Control panel > System**.

   b. Select the **Advanced** tab and click **Environment Variables**.

   c. Select **Path** in the system variable group and click **Edit**.

   d. Add **;%SystemRoot%\system32\Wbem** to the end of the variable value and click **OK**.

What are the supported CIM Servers?

The following are the supported CIM Servers:

■ OpenPegasus CIM Server version 2.11

■ Built-in SFCB server in SLES 11.1, SLES 11.2, SLES 11.3, VMware ESX 4.1, VMware ESXi 4.1 VMware ESXi 5.0, VMware ESXi 5.1, and ESXi 5.5

Why is .NET framework required to run CPQA for Windows?

Windows installation of CIM Provider requires the .NET framework. To download the .NET framework, click **Yes** on the Windows provider setup dialog box. It will automatically take you to the Microsoft website to download the .NET Framework. If you are not redirected to the website, you must manually visit the http://msdn.microsoft.com/en-us/netframework website and download the .NET framework.

How to check if the environment variables are defined properly in LINUX and VMware?

echo $<*Environnment_Variable_Name*> will give the value of the environment variable.

How to install CPQA?

For information on how to install CPQA, refer to Chapter 2, "Installing CIM Provider".

What must be done in case of the following error when installing the CIM Provider or any errors of the following kind: (Parsing Error: parse error: Error Adding new Qualifier ASSOCIATION: CIM_ERR_FAILED)?

Make sure that the CIM Provider is built and installed properly. This may be due to an empty or corrupt repository. Rebuild the repository and restart the CIM Server.

How to build the repository for OpenPegasus CIM Server?

Execute the following commands from the OpenPegasus installed home directory to clean and rebuild the repository:

- **make repositoryclean**

- **make repository**

Execute the following commands to shut down and restart the CIM Server that is running:

- **cimserver -s**

- **cimserver**

Is it necessary to reinstall the CIM Provider after repository rebuild?

Yes, once the repository is rebuilt, the CIM Provider needs to be uninstalled and installed again because rebuilding the repository after installing the CIM Provider removes all the QLogic-specific data (namespace and classes) from the repository.

How to enable HTTPS in the OpenPegasus CIM Server?

To use SSL on the communication protocol (HTTPS), the CMPI-capable CIM Server (only OpenPegasus is expected) must have been built with Open SSL.

Make sure that the following conditions are satisfied before proceeding:

- The **PEGASUS_HAS_SSL** and **OPENSSL_HOME** environment variables must be defined while building Pegasus with Open SSL.

- Pegasus must have been built with Open SSL.

- **Run the cimconfig -s enableHttpsConnection=true -p command** in the OpenPegasus directory to enable the HTTPS connection. Restart the CIM Server once it is enabled.

How to check if the CIM Provider is already installed?

Run the **rpm -qa|grep cim** command. If it lists the Brocade Adapter provider name brocade_adapter_cim_provider-3.x.x.x-x, or brocade_adapter_cim_provider-3.x.x.x, then the CIM Provider is already installed.

Is the SLP Infrastructure supported?

No. The SLP infrastructure is not supported and only the SLP registration file is available during provider installation. You must set up the SLP infrastructure (including installation of the SLP agent) and use the template that comes with the provider installation package. The recommended Open SLP software version is 2.0 or later.

Is upgrading or reinstallation possible for CPQA 3.2.3.0?

In case of OpenPegasus CIM Server:

- Upgrading from 3.2.1.0 to 3.2.3.0 is supported. Upgrading to the 3.2.3.0 release from releases earlier than 3.2.1.0 is not supported.

- Reinstallation is not supported in this release.

Do 3.2.3 CIM Providers work with 3.2.4?

Yes. There is no 3.2.4 CIM Provider, so you will need a 3.2.3 CIM Provider with 3.2.4.

Can the same RPM package be used to install CIM Provider on all platforms?

No. Platform-specific RPMs must only be used to install the CIM Provider on appropriate platforms.

What must be done in case of the following errors while installing or uninstalling CIM Provider in SFCB server in SLES 11.x?

Error: Did not install the Provider since SFCB cimserver is running. / Did not uninstall the Provider since sfcb cimserver is running.

Make sure that the SFCB Server (in which the provider is installed) is not running. Execute one of the following commands to make sure the SFCB Server is running:

- **/etc/init.d/sfcb status** (execute this command to check the status of the SFCB server)

- **/etc/init.d/sfcb stop** (execute this command to stop the SFCB server)

What are the commands to start or stop the SFCB server in SUSE 11.x?

The commands to start and stop the SFCB Server in SUSE 11.x are **/etc/init.d/sfcb start** and **/etc/init.d/sfcb stop**.

What are the commands to start or stop the SFCB server in the VMware machine?

The commands to start and stop the SFCB Server in the VMware machine are **/etc/init.d/sfcbd-watchdog start** and **/etc/init.d/sfcbd-watchdog stop**.

Can the same rpm package be used to install CIM Provider on the OpenPegasus Server?

No. Server-specific RPMs must only be used to install the CIM Provider on appropriate servers.

What must be done in case of the following errors while installing CIM provider on ESXi 5.x platforms?

Exception occurred: Unable to find option CIMvmw_brcdproviderProviderEnabled

1. Stop SFCB and issue the following command:

   /sbin/esxcfg-advcfg -A CIMvmw_brcdproviderProviderEnabled -T int -E "Enable or Disable the CIMvmw_brcdproviderProviderEnabled" -F 1 -N 0 -M 1

2. Make sure the CIM Provider is enabled:

   # esxcfg-advcfg --set 1

   /UserVars/CIMvmw_providerProviderEnabled

3. Restart SFCB to pick up the settings:

   # /etc/init.d/sfcbd-watchdog restart

A Installing OpenPegasus

Installing and Configuring the OpenPegasus CIM Server

The following steps set up the provider development environment using OpenPegasus on a Linux platform.

1. Download the OpenPegasus source distribution and have it extracted from the following website.

   http://www.openpegasus.org/

2. Set the following environment variables with the appropriate values:

   - **PEGASUS_HOME** - Must point to the Pegasus source directory.

   - **PEGASUS_ROOT** - Must point to the Pegasus source directory.

   - **PEGASUS_PLATFORM** - This is platform-specific. Select the appropriate value corresponding to the platform on which the OpenPegasus is installed.

   If SSL is required on the communication protocol, build Pegasus with Open SSL. **PEGASUS_HAS_SSL** and **OPENSSL_HOME** environment variables must be defined while building Pegasus with Open SSL.

   Example:

   - **PEGASUS_HOME**=/home/pegasus

   - **PEGASUS_ROOT**=/home/pegasus

   - **PEGASUS_ PLATFORM** = LINUX_IX86_GNU

3. Go to the Pegasus home directory and execute the following commands to build the OpenPegasus CIM Server:

   - **make** - Builds all the executables

   - **make repository** - Builds the repository

4. Set the OpenPegasus-specific executables and shared libraries in the path. After executing the **make** command, the executables and shared libraries are generated under the **bin** and **lib** directories respectively.

    It is recommended to set the required path **<PEGASUS_HOME>/bin** and then append the original values of the PATH variable.

    PATH=/home/pegasus/bin:........:$PATH - This is preferable over the following way:

    PATH=$PATH:/home/pegasus/bin:.

    LD_LIBRARY_PATH=$LD_LIBRARY_PATH:/home/pegasus/lib:.

    NOTE

    Combine Step 2 and Step 4 while you set the environment variables.

    ---

5. Verify the installation of OpenPegasus by executing the following commands on the shell prompt.

    a. **$> cimserver** - This command is used to run the CIM Server. After executing this command, the CIM Server is up and running to serve the client requests. Execute the following commands to make sure whether the server is running:

        ■ **$> cimserver** - On executing this command again, the error message displays ″Unable to start CIMServer. CIMServer is already running.Or Socket Bind Error″ indicating that the CIM Server is already running.

        or

        ■ **$> ps -ef | grep cimserver** - This command lists the CIM Server process running.

        ■ **cimserver -s -** This command stops the CIM Server.

    b. **$> cimcli ns** - This command is used to query the namespaces present in the repository of the OpenPegasus CIM Server. The **cimcli** program is a CIM client utility that comes as part of the OpenPegasus distribution.

The successful completion of the preceding steps means that the CIM Server and the repository are built with no errors.

CIM Client Utilities

For information on **cimlisten**, refer to the following web page.

http://simplewbem.org/

For information on **cimcli**, refer to the following web page.

http://www.openpegasus.org/

For information on **wbemcli**, refer to the following web page.

http://sblim.wiki.sourceforge.net/Wbemcli

For information on **wbemop**, refer to the following web page.

http://www.wbemsolutions.com/

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